Eeshan Hasan

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RESEARCH STATEMENT

I combine computational and experimental methods to study cognitive decision-making, focusing on the interplay between perception, attention, and memory. My research explores the interaction between human and machine cognition, aiming to use insights from human cognition (e.g., wisdom of the crowds) to enhance AI training. Conversely, I investigate how machines can help us better understand and improve human decision-making processes. I have a background in cognitive modeling, psychology, mathematics, statistics and machine learning and a constant interest in philosophy.

PROFESSIONAL EXPERIENCE

08/2025 - Current — The Ohio State University
Postdoctoral Researcher
PI: Brandon Turner

05/2017 – 05/2019 — *MyCol Healthcare Pvt Limited*
Mathematician/Data-Scientist
I built mathematical and predictive models using artificial intelligence and machine learning models to gain insights and improve healthcare systems.

EDUCATION

08/2022 – 08/2025 — *Department of Psychological and Brain Sciences, Indiana University*
Cognitive Science Program, Indiana University
PhD Student (GPA – 4.0/4.0)
Computational Decision Making Lab. [*Advisor: Jennifer Trueblood*]

08/2019 – 07/2022 — *Department of Psychology, Vanderbilt University*
Masters in Psychological Sciences (GPA – 4.0/4.0)
Computational Decision Making Lab. [*Advisor: Jennifer Trueblood*]
Transferred to Indiana University along with Jennifer Trueblood

08/2013 – 05/2018 — *Department of Mathematics, University of Hyderabad*
Integrated Masters in Mathematics (Bachelors + Masters)
First Class with Distinction (GPA – 8.8/10.0)

AWARDS & HONORS

03/2025 — **Outstanding Researcher Award 2025, Cognitive Science Program**
An award given by the Cognitive Science Program at Indiana University to the best graduate student for their research contributions.

06/2024 — **Indiana University Bhatt Travel Award**
An award given by the Indiana University for student travel to conference.

05/2023 **2023 William K Estes Summer Research Award**
An award given by the Psychology Department to identify and encourage individuals with a potential for computational modeling. ($5000)

05/2021 **Computational Modeling Award in Applied Cognition (Cognitive Science Society)**
An award given by the Cognitive Science Society for the best applied cognitive modeling paper at the annual meeting: *Improving Medical Image Decision Making by Leveraging Metacognitive Processes and Representational Similarity*

08/2020 **Vanderbilt Psychology Scholarship**
An award given in the Psychology department for outstanding performance for the year

08/2019 – 07/2022 **Vanderbilt University Graduate Student Scholarship**
The Vanderbilt Graduate Student Fellowship is guaranteed financial support from the Vanderbilt University. This scholarship is meant to fund doctoral candidates for research and tuition during their stay in the university. The award was relinquished upon moving to Indiana University in 2022.

2018 **JRF - Mathematical Sciences**
The junior research fellowship is a highly selective grant that is awarded to students in India through a competitive examination. It provides funding for them to conducted research in any nationally funded laboratory and for their graduate education.

08/2014-05/2018 **KVPY**
The Kishore Vaigyanik Protsahan Yojana (KVPY) is an on-going National Program of Fellowship in Basic Sciences funded by Department of Science and Technology, India. It has a highly competitive selection procedure with only approximately 50 students being selected for it across all sciences. It provides a generous fellowship for students during their studies and encourages research activity by providing an annual contingency grant.

PUBLICATIONS AND PEER REVIEWED PROCEEDINGS

Hasan, E., Epping, G., Lorenzo-Luaces, L., Bollen, J., & Trueblood, J. S. (2025). One-shot intervention reduces online engagement with distorted content. *PNAS nexus*, *4*(3), https://doi.org/10.1093/pnasnexus/pgaf068

Hasan, E., Liu, Y., Owens, N.*, Trueblood J. S. (2025) A Registered Report on Presentation Factors that Influence the Attraction Effect *Judgment and Decision Making.* 5 https://doi.org/10.1017/jdm.2024.27

Hasan, E., Duhaime, E. P., & Trueblood, J. (2024). Boosting Wisdom of the Crowd for Medical Image Annotation Using Training Performance and Task Features. *Cognitive Research Principles and Implications* https://doi.org/10.1186/s41235-024-00558-6

Hasan, E., & Trueblood, J. S. (2024). The Role of Salience in Multialternative Multiattribute Choice. *Proceedings of the Annual Meeting of the Cognitive Science Society* https://escholarship.org/uc/item/5jq8n5w9

Hasan, E., Eichbaum, Q., Seegmiller, A. C., Stratton, C., & Trueblood, J. S. (2024). Harnessing the wisdom of the confident crowd in medical image decision-making. *Decision* https://doi.org/10.1037/dec0000210

Hasan, E., Eichbaum, Q., Seegmiller, A. C., Stratton, C., & Trueblood, J. S. (2022). Improving Medical Image Decision-Making by Leveraging Metacognitive Processes and Representational Similarity. *Topics in Cognitive Science*. https://doi.org/10.1111/tops.12588
[Won the Computational Modeling Prize in Applied Cognition Category from the Cognitive Science Society]

Hasan, E., & Trueblood, J. S. (2022). Representational Smoothing to Improve Medical Image Decision Making. In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 44, No. 44). https://escholarship.org/uc/item/4p6878mm

*indicates student co-author

CONFERENCE POSTERS AND TALKS

Cognitive Psychology

Hasan, E., & Trueblood, J. (2025) Using Cognitive Models to Facilitate Human and Artificial Intelligence Collaborative Decision Making. Abstract published at MathPsych / ICCM 2025.
via mathpsych.org/presentation/1833.

Hasan, E., & Trueblood, J. S. (2024). The Role of Salience in Multialternative Multiattribute Choice. *Annual Meeting of the Cognitive Science Society 2024*

Hasan, E., & Trueblood, J. S. (2024). Comparing the impact of medical image classification training on human and machine representations. *Meeting of the Society for Mathematical Psychology 2024*

Hasan, E., Liu, Y., Owens, N., Trueblood J. S. (2024) A Registered Report on presentation factors that influence the attraction effect Judgment and Decision Making**.** *The Midwest Cognitive Science Society 2024*

Hasan, E., & Trueblood, J. (2023). Computationally Modeling the Role of Bottom-up Attention in Multi-Attribute Choice. *The Annual Meeting of the Psychonomic Society*

Hasan, E., & Trueblood, J. (2023). The Role of Salience-Driven Attention on Multialternative Multiattribute Choice. Abstract published at MathPsych/ICCM/EMPG 2023. Via mathpsych.org/presentation/1203.

Hasan, E., & Trueblood, J. (2022). Representational Smoothing to Improve Medical Image Decision Making. In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 44, No. 44).

Hasan, E., & Trueblood, J. (2022). Denoising and Debiasing Medical Image Decisions using Representational Smoothening. *Annual Meeting of the Society of Mathematical Psychology*

Hasan, E., Duhaime, E., Sekhar, T., Trueblood J. S., (2022) Improving Medical Image Classification using Wisdom of the Crowds. *Annual Meeting of the Psychonomic Society*

Hasan, E., Trueblood J.S., Eichbaum, Q., Seegmiller, A., Stratton, C. (2021) Representational Denoising for Improving Medical Image Decision Making *NeurIPS Workshop on Human and Machine Decision Making*
https://sites.google.com/view/whmd2021/home

Hasan, E., Trueblood J.S., Eichbaum, Q., Seegmiller, A., Stratton, C. (2021) Improving Medical Image Decision Making by Leveraging Representational Similarity *Society for Mathematical Psychology*
[Accepted as a Talk]

Hasan E. (2021) Learning Multiattribute Choice in an Unknown Environment *Summer Institute on Bounded Rationality at Max Plank Institute*

Hasan, E., Trueblood J.S., Eichbaum, Q., Seegmiller, A., Stratton, C. (2021) Improving Medical Image Decision Making by Similarity Based Aggregation *Psychonomics*

Hasan, E., Trueblood J.S., Eichbaum, Q., Seegmiller, A., Stratton, C. (2021) Improving Medical Image Decision Making by Leveraging Metacognitive Processes and Representational Similarity . *Proceedings of the Cognitive Science Society*

Hasan, E., Trueblood J.S. (2020) Defining a grammar for strategies in Multi-attribute Choice. *Society for Mathematical Psychology.*

Hasan, E., Eichbaum, Q., Daniels, P., Trueblood J.S. (2020)
Wisdom of the Crowds for Naturalistic Image Categorization and Decision Making. *Virtual Psychonomics*

Machine Learning

Hasan, E. & Trueblood J. (2024) Comparing Novice Perceptual Representations in Medical Domains to Artificial Neural Networks *Midwest Computer Vision Workshop, 2024*

Hasan, E., Duhaime, E. P., & Trueblood, J. (2023). Performance-based Wisdom of the Crowd Algorithms for Medical Image Dataset Labeling *Medical Imaging meets NeurIPS. Workshop at NeurIPS.2024*

Hasan, E. & Trueblood J. (2023) Using Representational Smoothening to Debias and Denoise Medical Decisions. *Artificial Intelligence Open House.*

Hasan E. & Trueblood J. (2021) Representational Denoising to Improve Medical Decisions. *NeurIPS Workshop for Human and Machine Decisions*

Decision Making

Hasan, E., & Trueblood, J. (2022) The Wisdom of the Confident Crowd in Medical Image Decision-making. *Annual Meeting of the Society for Judgment and Decision Making*

Hasan, E., Trueblood J.S., Eichbaum, Q., Seegmiller, A., Stratton, C. (2022) Leveraging Representational Similarity to Improve Medical Image Decision Making *Annual Meeting of the Society for Judgment and Decision Making [Accepted as a Talk]*

Hasan, E., & Trueblood, J. (2023). The Role of Salience Driven Attention in Multi-Attribute Choice. *The Annual Meeting of the Society for Judgment and Decision Making*

REVIEWING EXPERIENCE

Journal of Mathematical Psychology
Judgment and Decision Making
Unireps - Workshop @ NeurIPS 2023
Proceedings of the Cognitive Science Society

TEACHING EXPERIENCE

2023, 2024	The Science of Choice	– *Assistant Instructor*
2022	Introduction to Statistics	– *Assistant Instructor*
2020, 2021	Behavioral Decision Making	– *Teaching Assistant*
2020	Human Sexuality	– *Teaching Assistant*

2019 General Psychology – *Teaching Assistant*

STUDENTS MENTORED

Ke (Taylor) Lai	Honors Student [Now a PhD Student at Duke]	Computational Decision Making Lab (2021 – 2023)
Nicole Owens	Research Assistant	Computational Decision Making Lab. (2020-2021)
Helena Khalif	High School Student	Computational Decision Making Lab. (2020-2021)

SELECTED GRADUATE COURSEWORK

Cognitive Science and Psychology

- Readings at the Interface of Machine Learning and Cognitive Science
- Philosophy of Cognitive Science
- Computational Models of Attention
- Models of Human Memory
- Computational Neuroscience of Vision
- Computation Cognitive Modeling
- Computational Neuroscience
- Bayesian Cognitive Modeling
- Emotions
- Scientific Writing
- Psychological Measurement
- Teaching of Psychology
- Human Cognition
- Developmental Psychology
- Introduction to Cognitive Science

Mathematical Sciences

- Algebra – I, II, II (Group Theory, Ring Theory, Field Theory)
- Real Analysis – I, II, III (Real, Multivariate)
- Complex Analysis
- Functional Analysis and Advanced Functional Analysis
- Measure Theory and Integration
- Representation Theory
- Dynamical Systems
- Commutative Algebra
- Game Theory

Philosophy

- Philosophy for Cognitive Science
- Science and Values
- Western Philosophy III (Hume, Berkeley and Locke) Empiricism

REFERENCES

Jennifer Trueblood (jstruebl@iu.edu)
Ruth N. Halls Professor, Psychological and Brain Sciences
Director, Cognitive Science Program
Indiana University Bloomington

Johan Bollen (jbollen@iu.edu)

Chair, of Informatics and Cognitive Science
Luddy School of Informatics, Computing, and Engineering
Cognitive Science Program
Indiana University Bloomington

Robert Goldstone (rgoldsto@iu.edu)
Distinguished Professor and Chancellor's Professor, Psychological and Brain Sciences
Fellow, American Academy of Arts and Sciences
Indiana University Bloomington